

### Abstract Of The Disclosure

Aerogels having a monolayer coating are described. The aerogel and a monolayer forming precursor are provided in a supercritical fluid, whereupon the aerogel and the monolayer forming precursor are reacted in said supercritical fluid to form a covalent bond between the aerogel and the monolayer forming precursor. Suitable aerogels are ceramic oxides such as silica, alumina, aluminosilicate, and combinations thereof. Suitable monolayer forming precursors include alkyl silanes, chlorosilanes, boranes, chloroboranes, germanes, and combinations thereof. The method may also include providing a surface preparation agent such as water, or hydroetching an aerogel to enhance the coating of the monolayer.